UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,632	01/12/2004	Stephen Baumann	06-0561	1072

8840 7590 08/14/2007

INTELLECTUAL PROPERTY
ALCOA TECHNICAL CENTER, BUILDING C
100 TECHNICAL DRIVE
ALCOA CENTER, PA 15069-0001

EXAMINER	
FLANIGAN, ALLEN J	

ART UNIT	PAPER NUMBER
3744	

MAIL DATE	DELIVERY MODE
08/14/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Group 3700
AUG 14 2007
MAILED

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/755,632
Filing Date: January 12, 2004
Appellant(s): BAUMANN, STEPHEN

Harry A. Hild, Jr.

For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 6/4/2007 appealing from the Office action mailed 10/18/2006.

1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is essentially correct. The summary goes beyond the claimed subject matter to deal with irrelevant sections of the disclosure (features that are not the subject of the claims on appeal, such as methods of forming the claimed alloy and products) and unsupported allegations regarding the prior art (bridging

sentence of pages 2-3 of the brief) that more properly belong in the "Arguments" section of the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,620,265	KAWAHARA et al.	09-2003
6,660,108	DOKO et al.	12-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

For the convenience of the board, the grounds of rejection and explanations set forth in previous office actions will be reiterated herein.

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Kawahara et al. and US Patent #6,660,108 to Doko et al. (hereinafter "Doko '108").

Claim 1, as a representative claim, claims an aluminum alloy comprised of Si, Fe, and Mn, with the balance being Al (aluminum) and "tolerable

impurities"[1]. Kawahara et al. and Doko '108 both teach an aluminum alloy for fin material containing Si, Fe, and Mn. The only difference between the alloys taught in these references and the claims lies in the particular ranges now being claimed; the ranges taught in Kawahara et al. *overlap the claimed ranges* with the exception of iron (Fe) content, with the appellant now claiming a range that lies just outside the range disclosed in Kawahara et al. The ranges taught in Doko '108 overlap the claimed ranges with the exception of Mn (see Alloy "C" in Table 1 of Doko '108).

Since the prior art recognizes Fe, Mn, and Si content to be result-effective variables (the additives and the advantages and disadvantages of adding them in prescribed amounts are discussed in columns 9 and 10 of Kawahara et al.), it is believed that either Kawahara et al. or Doko '108 by itself establishes prima facie the obviousness of the claimed invention. In other words, routine optimization of variables known to be result effective is considered prima facie obvious absent a showing of criticality. ***In re Aller et al.*, 105 U.S.P.Q. 233; *In re Antonie*, 195 U.S.P.Q. 6.** Further, as pointed out in MPEP 2144.05, "a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would

[1] Claim 1 and others additionally recite various other potential additives like Zn or Ti that can be added in amounts "up to" certain limits; in the first action dated 12/12/2005, the Examiner noted that "the recitation 'up to' includes zero as a lower limit", citing In re Mochel, 176 U.S.P.Q. 194, and thus the claims did not require the presence of any elements recited that included such "up to" language specifying the amount. Appellant has not contested this interpretation of the claim scope, and indeed explicitly acknowledges this interpretation on page 3 of the specification.

have expected them to have the same properties. Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985)".

Additional evidence of obviousness of the claimed invention is provided by combining the teachings of the above references. Doko '108, for example, show that the use of Fe content in a range of 1.5-2.2% is known in the art for improved mechanical strength and thermal conductivity; thus it would have been obvious to one of ordinary skill in the art at the time the instant invention was made that Fe content in Kawahara et al.'s alloy could be increased above 2.0%. Conversely, Kawahara et al. teach that Mn content from 0.6%-1.8% in such alloys is known, and it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to increase the content of Mn in Doko '108 to a value within the range taught in Kawahara et al. to obtain the benefits disclosed in Kawahara et al.

The additional independent claims recite structural features that are shown by the references cited to be conventional in the art.

(10) Response to Argument

Apellant cites ***In re Rouffet*** for the proposition that "there must be some suggestion or motivation" in the prior art or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. This

formulation of statute and case law regarding obviousness has been rejected by the Supreme Court. See ***KSR v. Teleflex*, 82 USPQ2d 1385.**

The language added to the end of claim 1 ("wherein the aluminum alloy when cast . . .produces a finstock that is substantially free of breakage") in the amendment of 3/13/2006, and similar language added to claims 10 and 14, was directed at an embodiment (comparative example Alloy M in Kawahara et al.) that the Examiner had referred to in a previous anticipation rejection; however this specific embodiment is no longer relied upon. Appellant has argued that this example constitutes a "teaching away" from the claimed range of Fe content, urging that Kawahara et al. in fact teach that "Fe concentrations greater than 2.0% result in breakage during cold rolling". Appellant's construing of the disclosure of Kawahara et al. as teaching away from using amounts of Fe even slightly above 2.0% relies on selective citation and interpretation of Kawahara et al., and is inconsistent with what the whole of the prior art teachings found in Kawahara et al. and Doko '108 would fairly teach or suggest to one of ordinary skill in the art. For example, Kawahara et al. teach that various factors can cause such breakage, including improper Si content, roll pressure, as well as the issue of Fe content (*early crystallization of Fe-Al series compound* when Fe content is high, discussed in lines 16-27 of column 10). While the latter discussion might seem to dissuade one skilled in the art from increasing Fe content to just above the upper limit of 2.0% taught in Kawahara et al., the reference also teaches that

> Mn reacts with Fe simultaneously added in a large amount, to form an Al--Mn--Fe(--Si)-series compound, **which suppresses an Al--Fe compound** that works as a cathode side, from depositing, to improve self-corrosion resistance
>
> (column 9 lines 17-21, emphasis added)

Thus, one skilled in the art would expect that the potential disadvantage of adding slightly more Fe could be offset by increasing the Mn content to the upper end of the recommended range of 0.6%-1.8% so that the problem of Al-Fe compound formation (and early crystallization potentially causing breakage problems cited above) would be suppressed as this passage teaches. Indeed, it is noted that Alloy M contains an Mn content of only 0.9%; the teachings of Kawahara et al. cited above would suggest that increased Mn content in this example would likely prevent the breakage problem noted.

Appellants' arguments also fail to address the alternative basis of rejection in which Kawahara et al. is relied on as the basis for suggesting an increase in the Mn content of Doko '108's Alloy C to improve mechanical strength, fin melt resistance, and thermal conductivity (lines 15-44 of column 9). Appellants comment on Doko '108 by stating that Doko '108 "disclose an Al-Ni-Fe alloy", which is "far removed" and "metallurgically different" from Appellant's claimed alloy. Appellants overlook the fact that Alloy C of Doko '108 contains both Fe and Mn, and also the fact that the claims employ the nonlimiting term "comprising", which permits the presence of other components in the scope of the claims; thus, claim 1 for example would read on an Al-Ni-Fe-Si-Mn alloy containing any Ni content. It is further noted that

Appellant discloses embodiments which contain Ni, just as Doko '108 does. It is thus hard to reconcile Appellant's insistence that Doko '108's alloys are "far removed" from the claimed invention when Appellant's own disclosure lists virtually the same additives (Ni, Fe, Si, Cr, Cu, Mn, Mg, Zn) as Alloy C of Doko '108.

Appellants also urge that the amended range of Fe now claimed represents a "critical" range, and thus even if the overlapping ranges of Si and Mn and the virtually touching ranges of Fe content of the claims and prior art establish *prima facie* the obviousness of the claims, such a showing of criticality overcomes the *prima facie* finding of obviousness. It should be noted, however, that the applicant's disclosure clearly indicates that maintaining Fe content *above* 2.0% is not critical to avoid breakage; the claims originally submitted encompassed a range of 1.9%-2.4% of Fe content, and this reflected the specification's teaching (page 8) that the disclosed invention encompasses this broad range of Fe content:

> Iron in the alloy forms relatively small intermetallic particles during casting, that contribute to particle strengthening. Less than about 1.9% Fe does not take full advantage of the strengthening effect, while Fe in excess of about 2.4% results in the formation of large primary intermetallic particles which inhibit the ability to cold roll the alloy to the desired final gauge. Fe has very low solubility in aluminum, so its influence on conductix, ity is relatively small. Iron in the range of **about 2.0 - 2.2%** is a good compromise for balancing post-braze strength and ease of manufacture. (emphasis added)

Thus, it is clear that Fe content values lying within the range disclosed in Kawahara et al., as well as Doko '108, are admitted by Appellant to "represent a good compromise for balancing . . . strength and ease of manufacture." Nothing in the discussion of the alloying component percentages mentions the criticality of keeping Fe content "above 2.0%" as is now claimed.

In conclusion, it is believed that a strong *prima facie* case of obviousness has been established; that no criticality has been shown to overcome the *prima facie* case, and that to the extent that Kawahara et al. may in some respects be argued to suggest the desirability of limiting Fe content in the type of alloys for finstock claimed, other teachings in Kawahara et al. and Doko '108 undercut this argument. As a result, any potential "teaching away" factor arguably contained in the single inferior example of Kawahara et al. is outweighed by the strong *prima facie* case of obviousness, and by the totality of teachings in the prior art.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Allen J. Flanigan

Allen J. Flanigan

Conferees:

Cheryl J. Tyler

Cheryl J. Tyler

FRANTZ JULES
SUPERVISORY PATENT EXAMINER

Frantz Jules